DOCUMENT RESUME

ED 279 147 EC 192 110

AUTHOR Semmel, Melvyn I.
TITLE Special Education in the Year 2000 and Beyond: A Proposed Action Agenda for Addressing Selected Ideas.
PUB DATE 87
NOTE 72p.; In: The Future of Special Education: Proceedings of the Council for Exceptional Children Symposium (Lake Geneva, Wisconsin, May 1986); see ED 276 245.
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Curriculum Development; Dropouts; *Educational Needs; *Educational Trends; Education Work Relationship; Elementary Secondary Education; Futures (of Society); *Handicap Identification; Mainstreaming; *Mild Disabilities; Research Needs; *Special Education; Teacher Education

ABSTRACT

The paper addresses issues concerning the future of special education with a focus on the mildly handicapped (MH). After an initial section presenting the particular frame of reference and philosophical biases underlying this presentation, recommendations are made for a possible agenda which addresses seven key areas in the field. Among recommendations concerned with the overidentification of MH students are acceptance by the field that MH cannot be objectively validated and the need to educate policy makers to an ecological orientation to child variance. Agenda items concerning the dropout problem in special education include avoidance of "pushing out" MH students in response to pressures for academic excellence and development of outreach programs to provide a "second chance" for dropouts in the community. Improvements in the area of curriculum and transitions in special education include a broadening of the concept of transition. Among agenda items related to least restrictive environments are implementation of the accruing body of effective schools research; and among recommendations for special education teacher training are more generic training of specialization personnel. Such needs as better instructional programming and training in computer literacy are noted for the technology area. A major recommendation for the final area (theory, research and leadership training) is cross validation of instructional research results from the general education sector.(DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED279147

Special Education in the Year 2000 and Beyond:

A Proposed Action Agenda for Addressing Selected Ideas

Melvyn I. Semmel
Professor, Special Education and
Director, Special Education Research Lab
University of California at Santa Barbara

EC192110

BEST COPY AVAILABLE

SPECIAL EDUCATION IN THE YEAR 2000 AND BEYOND: A PROPOSED ACTION AGENDA FOR ADDRESSING SELECTED ISSUES[1]

Melvyn I. Semmel

University of California, Santa Barbara

In its broadest context, the field of Special Education is concerned with the policies and procedures necessary for maximizing the potential growth of all handicapped citizens. Our concerns are focused on cost-effective educational interventions directed at significant socially identified pupil variance (Hobbs, 1975). In this paper, selected issues and problems focused primarily on the mildly handicapped (MH) population will be addressed toward establishing a basis for discussion and change as the field of Special Education projects to the year 2000 and beyond. The magnitude of future problems predicted by demographic projections for child variance in the schools has provoked me to limit discussion to MH pupils, who represent the largest, and most rapidly growing handicapped population in the schools (Yates, 1986; U.S. Department of Education, 1986). These issues have also stimulated an examination of several of the unverbalized assumptions which presently serve to delimit the roles and responsibilities of our field in regard to pupil eligibility criteria and the nature and extent of service delivery. There is no intention to suggest that the issues raised here are the most important to the future of Special Education--although I do believe that they warrant our particular attention.

Frame of Reference and Philosophical Biases

The frequently quoted caution of Santayana reminds us that those who ignore history are doomed to repeat it. The evolution of our field is an account of how democratic societies value and address marked individual differences in the schools. Past scientific inquiry related to defining human variance has not been distinguished by its objectivity (Gould, 1981). Contrary to popular belief, science is not free of the ephemeral influences of societal attitudes and public policy (Semmel, 1984a). Identified human variance in schools is a function of organismic variables interacting with political, social, economic, and educational factors which are manifested in instructional contexts. Special Education, to borrow from Gould's more generalized conclusion, "is invested with enormous social importance but blessed with very little reliable information. When the ratio of data to social impact is so low, a history of scientific attitudes may be little more than an oblique record of social change" (pp.21-22).

Public policy in Special Education derives from socio-political forces, often conveniently correlated with results of selected "scientific research" (e.g., Dunn, 1968), to form a consensual theory of appropriate service delivery for handicapped youth (e.g., P.L. 94-142). However, formally enunciated policies are unobtrusively converted to other realities by those who are responsible for their subsequent translation. As mandated policy is promulgated from distal levels of decision making to local

levels, the service providers ("street level bureaucrats") determine its ultimate delivered form (Weatherly & Lipsky, 1977). Hence, it is evident that in assuring the legal rights of handicapped pupils through the legislative initiatives of the past decade, we have not necessarily achieved the intention of maximizing educational opportunities or assured quality education and effective outcomes for the MH population.

Philosophers of science and research methodologists refer to the "law of proximal variables" in their assertion that the closer a variable is to an outcome of interest (dependent variable), then the higher is the probability of the former directly impacting on the latter. Hence, when applied to policy driven Special Educational interventions it is apparent that effective achievement outcomes for handicapped pupils are more likely to be influenced by proximal instructional, teacher, and school variables than by distal federal, state, district, or other ancillary service variables operative outside the classroom or school.

Further, our recent experiences in studying Special Education policy in twenty-four school districts in California (Project PASE: Policy Analysis in Special Education) indicated that apparently the more distal a role and/or function is from the avowed purposes of Special Education, then (1) the higher is the salary and cost for that role and/or function, (2) the higher is the perceived importance and prestige of that role and/or

function, (3) the less is the perceived ownership of instructional problems resulting from child variance by that role and/or function, and (4) the more resistant to modification of the status quo is that role and/or function (Semmel & Schram, 1983). This observation, if generalizable, predicts that the prestigious roles and functions which are essentially removed from the direct problems of child variance and the instructional process (e.g., district administrative functions, district assessment staff functions, etc.) will be less cost-effective in regard to achievement goals than instructional personnel and their functions (e.g., instruction by teachers and/or aides). Following the economist's principle that all real costs are opportunity costs, we must appreciate that expenditures for the least effective elements of Special Education delivery systems are lost opportunity costs if not reallocated to new or extant effective instructional facets of the program.

Having established my orientation and biases in approaching this presentation, the following discussion focuses on selected issues and future action agenda items for consideration as we look toward the year 2000 and beyond. Hence, this paper addresses concerns related to (1) the over-identification of mildly handicapped pupils, (2) school drop-outs, (3) least restrictive environments for handicapped learners, (4) curriculum and transitions, (5) teacher training, (6) technology and (7) theory, research, and leadership training in Special Education.

1.0 THE OVER-IDENTIFICATION OF MILDLY HANDICAPPED PUPILS

The rapidly growing numbers of mildly handicapped (MH) pupils in the schools is clearly one of the most pressing issues facing the field of Special Education as we project into the future. Over a decade of current public policy has failed to realize acceptable standardized definitions, assessment and identification procedures, or reliable prevalence estimates of mild handicapping conditions. Since the enactment of P.L. 94-142, it is apparent that the prevalence of educable mental retardation (EMR) has been reduced significantly, but we are witnessing a disturbing side effect from this "miraculous phenomenon." It would appear that a rapidly growing number of "cured" retarded pupils and others who demonstrate various school learning problems have contracted a new strain of the "educational disease" which we are identifying as Learning Disabilities (see Ysseldyke & Thurlow, 1984). The eighth annual report to Congress on the implementation of the Education of the Handicapped Act (P.L. 94-142; P.L. 98-199) records an increase of epidemic magnitude (131%) in the number of learning disabled (LD) pupils identified in the United States over the past decade (U.S. Department of Education, 1986). Accruing evidence also demonstrates that characteristics of school identified MH populations are discrepant from both government supported definitions and from identification criteria currently being used by researchers. For example, independent investigations (Kirk & Elkins, 1975; Norman & Zigmond, 1980; Ysseldyke, Algozzine, Shinn,

& McGue, 1982) clearly indicate the problem of distinguishing the LD pupil from the low achiever. The percentage of students classified LD by the states and provinces varies so widely as to be meaningless for generalization to the national level (Gerber, 1984; U.S. Department of Education, 1986). In fact, there is considerable evidence that criteria for identifying LD pupils differ from district to district, and between schools within districts (Semmel, 1984a). Hence, from a parent's perspective, a "cure" for some LD pupils may well be achieved inadvertently by moving to another neighborhood or to another school district, or state or province.

The possibility exists that LD researchers, state and other governmental administrators, and public school personnel may all be working toward different ends in the assessment and identification process. While some policy makers and administrators are looking for increased precision in defining and assessing LD, school personnel may, in fact, be seeking a pragmatic imprecision for maintaining the broadest possible administrative discretion in allocating Special Education resources (Nelson, 1982). Weatherly & Lipsky's (1977) cogent description of the redefinition of federal and state policies by the "street level bureaucrats" surely applies in the translation of referral, assessment, and identification of LD pupils at the school and district levels. Examples of informal policy generation by school personnel contrary to the provisions of legal

mandates abound (e.g., McCann, Semmel, & Nevin, 1985). Evidence for stricter eligibility criteria at the state or district level does not necessarily predict a standardization of pupil types assigned to a mandated category; nor does it indicate a better pedagogical understanding of different categories of learning handicap. Hence, stringent criteria serve to establish improved fiscal control, but do not guarantee improved insights into the etiology or instruction of pupils with serious learning difficulties.

Assumptions of Psychometric Orientations

There are four unverbalized assumptions reflecting a strong psychometric orientation to the identification of LD that underlie most federal, state, and provincial policy for Special Education. First, legislative mandates assume that LD represents a di ease-like process or biological anomaly, that exists within students, waiting to be detected and measured. Second, current policy assumes that teachers' referrals represent suspicions, not conclusions, about referred students' exceptionality. It is assumed that teachers suspect disability, but psychometric tests confirm its existence. Third, the distrust of teacher judgment is accompanied by the presumption that technically adequate assessment instruments exist. It is assumed that the reliability of psychometric instruments is sufficiently high so as to trivialize the likelihood of false positives and false negatives in the identification process. Finally, it is assumed that

decision-making by assessment personnel, relative to both eligibility and placement, reliably reflects assessment outcomes (see Semmel, 1984a).

It is clear that these four assumptions are not warranted by the facts. The great majority of mildly handicapping conditions are probably relative to the particular environment in which they are operationally defined. Hence, they defy an absolute definition, they vary in prevalence rates, they are frequently unreliably detected by psychometric instruments or assessment teams interpreting such data, and eligibility and placement determinations are often dependent on non-assessment variables (Kelemen & Semmel, 1986; Semmel, 1984a).

The Teacher As Test

My colleague Mike Gerber and I have proposed that the teacher is the de facto test in determining learning handicaps in the schools (Gerber & Semmel, 1984b). In our view teachers work within a context that encourages them to differentiate high from low achieving students. They tend to differentially assess pupils using an informal scale ranging from "very-easy-to-teach" to "very-difficult-to-teach" (Zigmond, 1983). Research reported by Brophy & Good (1974) and others indicates clearly that teachers direct their instructional effort and positive affect towards students whom they consider "teachable" and away from students who are unresponsive to instruction or who are particularly difficult-to-teach. Microeconomic models of classroom instruction

also indicate that teachers target their instruction at modal students in relatively homogeneous groups in an apparent attempt to reduce the cognitive complexity of planning and instruction associated with extreme variance in student characteristics and abilities (Brown & Saks, 1983; Gerber & Semmel, 1985). Distributions of achievement outcomes in classrooms can be interpreted as evidence that teachers prefer, or even require, homogeneity among students. Gerber & Semmel have pointed out that in making instructional decisions which ultimately trade increased mean outcomes for the class against reduced achievement variance, teachers behave as if they prefer reduced variance. Teachers may tend to allocate the major portion of their instructional effort to modal and slower, but not to the slowest, learners as a means of achieving an efficiency of instructional allocations. However, we do not know the precise point at which a given student is perceived by a teacher as falling below an instructional efficiency "cut-off," resulting in diminished instructional effort. Research has failed to clarify the determinants of this "tolerance limit" (see Christenson, Ysseldyke, & Algozzine, 1982). We have also failed to document how referral decisions relate to objective characteristics of teaching environments, or to different developmental expectations for children at different grade levels. It is well known that teachers rarely refer children with mild learning problems at the early elementary school levels. It may well be that greater expectancies for

change in perceived teachability occur at early developmental levels--but tolerance for teaching-learning mismatches decreases as children approach later elementary grades (i.e., 3rd and 4th grades) where homogeneity of performance is considered necessary.

Identification of children by teachers as MH reflects economic properties of classroom process, such as the need to distribute instructional effort among students of differing ability. These important instructional distribution variables appear in contradistinction to the psychometric properties of assessment instruments. Teacher "tolerance" for individual differences may have economic and organizational meaning beyond conventional connotation of patience and forbearance. We have indicated that increased tolerance for students in the lower portion of a teachability distribution, resulting in increased instructional effort, can only be evidenced if either the net resources per class is increased (e.g., reduced class size, additional paraprofessional staff), or through the adoption of more efficient instructional technologies (e.g., microcomputer applications). Further, just as teachers have tolerance limits which reflect in the inability to teach certain students effectively, schools also have such limits due to constraints on their degrees of freedom and ability to organize or reallocate resources to ameliorate student problems identified by teachers.

The alarming demographic increases in prevalence rates of LD pupils has resulted in an inevitable concern for the over-

identification of LD pupils which is causing the rapidly skyrocketing costs of Special Education (Tucker, 1980). There appears to be a concerted effort to reduce the number of referrals to Special Education. Attempts to impose stringent psychometric discrepancy models have resulted in unsuccessful and egregious outcomes (Algozzine, Ysseldyke & Shinn, 1982; Warner, 1981; Kelemen & Semmel, 1986). Several innovations have also been introduced toward developing what Wilson (1984) calls "preventative delivery models" for maintaining children in regular grades through early detection of learning difficulties and "informal intervention designed to prevent a further escalation of a pupil's problems" (p. 231). The school site child study or problem solving team appears to be a defining innovation characterizing most preventative models. Our research (Gerber, Semmel, & Schram, 1983) clearly indicates that school based teams do not necessarily decrease the flow of learning handicapped pupils into Special Education. Rather, they encourage more efficient allocation of resources, clarification of educational goals, and a more rational basis for requesting additional fiscal support or new technological innovations, when compared to the standard referral, assessment, identification, and placement "restorative models" which have spawned the standard practices of contemporary district-driven Special Education delivery systems.

If our observations can be generalized, then they suggest the need for more parsimonious practices for referral of

difficult-to-teach pupils when compared to extant district-based systems which are predicated on legal compliance and psychometric properties of assessment instruments. It appears to follow from the position argued here that there is a clear need to critically rethink current conception of Special Education for MH children. In the absence of professional agreement and compelling empirical research evidence, federal and state policies represent a "consensual theory" of Special Education for this population, based primarily on unsubstantiated psychometric assumptions. Recent research (see Semmel, 1984a) has provided evidence which indicates the critical importance of teachers in regard to the decision to refer a pupil and the subsequent eligibility decision for Special Education. Ysseldyke and his associates (Ysseldyke & Thurlow, 1984) have demonstrated the relatively high degree of overlap between a teacher's referral and the corroborating decisions of formal district-based assessments. The predictive validity of the teacher's referral in relationship to assessment and identification outcomes has led me and my associates to assert that the teacher is, in fact, the "imperfect test" that determines whether the schools will legally certify a difficult-to-teach pupil as LD and deem him/her eligible for Special Education services.

Ownership of Learning Problems

Many teachers attempt to abrogate responsibility for problem learners through referrals to Special Education. Such decisions

are frequently seen as socially acceptable and professionally defensible vehicles for seeking to physically remove problem pupils from the classroom, and thereby, reduce variability in perceived teachability among pupils. Given the complexity of the problems they face in their attempts to distribute instructional effort among a range of learner differences in the classroom, teachers' referral behavior is clearly rational and adaptive. An effective reduction in variance is also achieved from the teacher's perspective if referred students are allocated additional resources from Special Education while they remain in regular classrooms. In this case, a portion of all instructional effort is provided by Special Education, thereby permitting regular classroom teachers to reallocate some of their time to other students or purposes. Thus, referral behavior may be a reflection of an unobtrusive lawfulness in how teachers determine their judgments about teachability. These judgments may become the precipitant of referrals for available special services, and can explain how teacher identification of pupils as "learning disabled" can appear so idiosyncratic but simultaneously be extremely reliable.

From a purely pragmatic position, it does not matter why teachers identify students as difficult-to-teach. A child with an innate or acquired neurological or perceptual handicap will experience a similar instructional history as the "non-disabled" pupil who is perceived and identified as "learning handicapped" by

his/her teacher. The important issue is the equally valid prediction that all of these pupils will probably fail to profit from instruction delivered by the teacher. However, there is no simple resolution to this policy problem. If reliability of identification of MH students is demanded by constraining criteria which require the verification of certain characteristics specified by consensual definitions, then teacher referral is unnecessary. Mass screening procedures would be more efficient and more equitable. But the teachers' subjective identification of difficult-to-teach, but otherwise "ineligible," students would still demand an appropriate policy resolution. On the other hand, if teachers continue to serve as de facto tests of who is "handicapped" using criteria related to perceptions of teachability, then control of the costs for Special Education may not be possible.

The critical issue facing us concerns the ownership of learning problems in the schools. The current system of referral, assessment, and identification of MH pupils for Special Education placement discourages teachers and individual schools from assuming ownership of the teaching/learning problems involving such pupils. Who is responsible for children who learn at significantly slower rates than their peers? Who is responsible for students who require significantly more than average allocation of resources to secure even low rates of reliable educational progress? In answer to these questions, and despite

rhetoric about "mainstreaming," public policy has failed to discourage the development of Special Education as a parallel "restorative" educational system which assumes responsibility for MH children. In so doing, "special" education as an individually focused intervention has been overshadowed by an administrative system which seeks to comply with governmental mandates (see Ballard-Campbell & Semmel, 1981) and to maximize subsidy (Magliocca & Stephens, 1980). Teachers and schools have been reinforced for referring children into this "second" system. However, reinforcement apparently results not because eligible students are physically removed, but rather because eligibility induces within-school rearrangement of problem ownership. That is, it appears that though teachers' referrals often intend and result in Special Education eligibility (Algozzine et al., 1982; Ysseldyke et al., 1982), "placement" represents a transfer in ownership of learning problems from regular to special educators--more than a change in instructional setting. In California, for example, the great majority of learning handicapped students are served in a resource program in which students are only physically removed from regular classrooms for relatively short periods of time during each week. Hence, the certification of a child and placement under Special Education auspices, usually within the same referring school, has the effect of removing the responsibility from the referring teacher and the school--and

placing problem ownership on the more administratively distal district-based "second" system.

The solution to the question: "Who shall be called mildly handicapped?" appears to rest with accepting the relativity of the "mildly handicapped" concept, accepting the limitations of psychometric models for standardized identification, suspending disbelief in teachers' referrals, and simultaneously removing expensive and arbitrary district-based assessment and administrative processes, which are currently required before adequate resources can be allocated. Clearly, existing assessment processes rarely disconfirm teacher judgment. Therefore, it seems far more rational to treat teachers' referrals as "requests" for assistance with problems (Chalfant, Pysh, & Moultrie, 1979), without making the allocation of necessary resources contingent upon expensive, mandated diagnosis of handicap. Formal assessment to identify MH pupils represents a lost opportunity cost... In the future, resources allocated for this purpose should be redirected to the school site for the purpose of increasing instructional alternatives for difficult-to-teach children. The fact that teachers vary among themselves in perceived student characteristics that are considered most salient for judging teachability should not be interpreted necessarily as a threat to "test" validity. Perhaps a more pertinent question would be: "Can a given teacher reliably identify pupils whose response to his/her instruction is such as to predict unacceptable rates of

achievement?" If teachers can identify these "at risk" students, then, given the present lack of instructional precision and state of knowledge in our current Special Education "science," the persisting policy dilemma of the identification of MH pupils must be resolved more through political and economic, rather than pedagogical, considerations. Which of the problem students identified by teachers are school administrators willing to treat as handicapped?

Agenda Items Related to Over-Identification of MH Pupils

1.0. It is proposed that Special Education as a field should accept as fact that mild mental retardation, learning disabilities, and emotional disturbance cannot be objectively, reliably, or consensually validated through a standardized operational definition. The relativity of the "mildly handicapped" construct makes it improbable that a clear and utilitarian definition can be realized when prescribed by statute or regulations promulgated at administrative levels above the classroom and school site. The field should accept the scientific fact that currently labeled "mildly handicapped" categories are, for the most part, "fuzzy," overlapping constructs applied to difficult-to-teach children. Such pupils can be validly identified, assessed and assigned to programs only within specified social, economic, political, cultural, and educational contexts most proximal to relevant service delivery and intended

outcome variables--i.e., those factors found within the classroom and school site.

1.0.1. If we cannot define and differentiate LD and other MH categories, and we cannot determine the prevalence of each category type in the population, and if we cannot measure these conditions validly and reliably, and if our formal identification of eligible pupils is related to or determined by resource availability and other non-assessment variables, then it would appear evident that there is little hope now or in the future that we will solve the problem of standardizing the identification and differentiation of MH pupils across school, district, state, provincial or national boundaries; **and we should abandon our fruitless and costly efforts to do so!**

1.1. Legislators and other policy makers should be educated to the fact that mildly handicapping conditions are not disease-like entities residing within the child; but rather they represent important school related problems caused by the interaction of individual child variance from modal performance within different educational contexts. Hence, in the future, policy makers must be educated to the fact that the prevalence of such problems in the schools will always naturally fluctuate--not unlike other relative demographic phenomena in our society and economy. Resource allocations to Special Education for MH pupils should, therefore, be periodically determined relative to obtrusive social, economic, and educational priorities of the nation, state, and/or province.

1.2. Policy makers can be educated in the future to this ecological orientation to child variance in the schools as effectively as we have sold the medical/organismic view of mild disability in order to garner sympathy, political, and fiscal support. They must be lobbied to gain their support for a culturally relative definition of MH youth.

1.2.1. Current Special Education proponents should join with a broader coalition for obtaining governmental resource allocations for all difficult-to-teach children in the schools. Such activity will serve the field well without diminishing support for the more easily identified populations of severely disabled pupils in the schools. Under this expanded definition of the domain of Special Education, our field has the challenging opportunity to accept future responsibility for all difficult-to-teach pupils in the schools by directly interfacing with the regular education establishment at the school site level.

1.3. In the future, Special Education for the mildly handicapped should be essentially considered to be an integrated school site service delivery system. Allocations of resources to the local and intermediate district levels for formal assessment, administration, and IEP development and monitoring should be transferred to the school sites for reallocation toward increasing instructional alternatives within classrooms and schools.

1.4. School site administrators and staff should organize problem solving teams whose purpose is to assist teachers with

direct interventions in response to teacher-identified instructional problems. Teams should also assist in planning and implementing school-based Special Education interventions, formative evaluation of preventative and restorative programs, and tracking of pupil progress. The team should participate directly in the determination of need for "external" district assistance with problems falling beyond the school's resources.

1.4.1. Reallocated district funds drawn from formal assessment, administration, and IEP implementation budgets should be used to support school site problem solving team personnel and costs for innovative instructional interventions.

1.5. The concept of assessment should change from emphasis on standardizing procedures for determining eligibility of children for Special Education services, to matching educational problems in teaching and learning to effective interventions delivered in settings which are proximal to the problems. Ownership of both the problems and the interventions should rest with those responsible for producing desired child outcome goals. Therefore, future assessment in the schools must be curriculum based.

1.6. School site administrators, in conjunction with their problem solving teams, should determine which students will require instructional resources over and above what would normally be provided to the school for "regular" programs. Additional resource needs to support assessment, prevention and restorative

programs delivered within the school matched to identified difficult-to-teach pupils should be organized into the school's proposed Special Education program for MH pupils.

1.6.1. School sites should be required to submit specific plans for implementing proposed educational interventions for children needing Special Educational services. These plans should contain clear descriptions of each school site's MH population, appropriate goal statements, operational descriptions of proposed interventions matched to problem descriptions, and specifications for the evaluation of such program interventions. Pupil growth in academic, social, personal, and other agreed-upon domains will be the primary criterion in determining the cost-effectiveness of school-based interventions.

1.7. The schools should be required to obtain approval for intended instructional goals for designated MH pupils from parents and appropriate district administrators and school boards.

1.8. Federal, provincial, and/or state reimbursement for Special Education of the mildly handicapped should be determined on a programmatic basis rather than on mandated pupil eligibility criteria. New methods for determining available resources and equitable allocations to school sites must be developed.

1.8.1. Governmental allocations over and above support for regular education should be determined based upon formulae tied to an appropriate percentage of available governmental resources, the amount determined based on extant priorities and a

fluctuating index of the economic conditions for a given fiscal period.

1.8.2. Distribution of resources for specified school site Special Education programs should be achieved through equitable allocations flowing through local and intermediate administrative organizational units.

1.9. Protection and advocacy provisions of current laws for the handicapped should be extended and further codified for mandating the regular education establishment's responsibilities for all "mildly handicapped" pupils at school sites. Administrative organizational units of government should develop procedures for monitoring compliance by the schools so as to assure the rights of all difficult-to-teach pupils to a free and appropriate education in the least restrictive environment. These overseeing agencies will also monitor schools to assure that reallocated resources from the district level are directed toward implementing intervention programs for intended pupils.

1.10. Standardized administrative arrangements (e.g., Special Class, Resource Room) and traditional professional titles (e.g., Speech & Language Specialist, School Psychologist, Resource Room Teacher) will be unacceptable surrogates for descriptions of instructional programs and role functions. In the future, the conventional administrative descriptions of Special Education programs should give way to multidimentional scaling, measurement and descriptions of the components of effective pedagogical

environments for difficult-to-teach learners (see Semmel, Lieber, & Peck, 1986).

1.10.1. Formal and informal procedures should be developed which permit rapid, flexible, and effective reallocation of resources within the schools toward generating environments designed for matching appropriate human and material resources to solve the perceived needs of difficult-to-teach learners and their teachers. Hence, in the future, educational environments generated for MH pupils will also be characterized by variance rather than a few modal administrative arrangements which have become the "procrustean bed" of Special Education.

1.11. Future school and district administrators should spend a good deal of their time and effort on the development and maintenance of effective schools. Criteria related to within-school efforts to meet the problems of difficult-to-teach pupils must be paramount in addition to those aimed at increasing modal pupil performance in the school. The assessment of effective school variables should lead to administrative behaviors designed to alter school environments toward maximizing the growth of all pupils (see Good & Brophy, 1986).

1.11.1. Staff contributions to enhancing the educational environment of the school in addressing the needs presented by child variance in learning and behavior should serve as an important basis for determining merit and tenure decisions.

1.11.2. School faculties and administrators should work in "quality circles" toward solving teaching and learning variance problems to which they all claim ownership.

1.12. School sites should be responsible for formative evaluation of cost-effectiveness of interventions delivered to this population. Districts will be responsible to the state or province for summative evaluation of the aggregate of school site programs and procedures. Between- and within-school program variations will be deemed appropriate, in contradistinction to expected standardization around prescribed or otherwise modal programming.

1.13. The proposed expanded concept of Special Education will lead to a broader philosophical basis for considering how democratic societies address the problems of individual differences in the schools. Hence, our focus on variance rather than central tendency will provoke the schools to greater concern for pupils from minority backgrounds, from bilingual homes, from economically deprived families, and all other ecological influences which serve to bring teachers and schools to the perception that a child is difficult-to-teach. The mildly handicapped, then, will be recognized as a heterogeneous population of pupils who are protected by the right to a free and appropriate education; they will be recognized as pupils who "must be taught in order to learn." Future research, practice,

advocacy, and personnel preparation will all reflect this expanded ecumenical view of the field of Special Education.

2.0 THE DROP-OUT PROBLEM IN SPECIAL EDUCATION

It makes little sense to help difficult-to-teach pupils in the elementary levels if they leave school prior to completing high school. Yates (1986), Schrag (1986) and others have alluded to the serious problem of school drop-outs and the prospect of the exacerbation of this problem in the future as a result of contemporary educational reform emphases. Schrag indicates that the already high drop-out rates (18 to 25% nation-wide and up to 50% in the inner city schools) may increase. Drop-out rates are disproportionately weighted among black (25%) and Hispanic (40%) students. Initial indications suggest that a great percentage of the mildly handicapped population are dropping out prior to completing high school (Zigmond & Thornton, 1985).

Agenda Items Related to School Drop-Out Problems

2.0. We must take steps to assure that MH students in junior high and high school programs will not be "pushed out" of the schools by site administrators practicing an informal policy in response to present and future pressures to conform to demands for academic excellence and educational reform. We must better understand the relationship between unwed motherhood and the probability of school failure and dropping out of school.

We must learn more about the relationship between behavioral norm violation, absenteeism, school failure, drop-out rates, and

delinquency. The problems of MH children and youth residing in correctional facilities are rapidly growing. The prevalence of mild handicapping conditions among delinquent populations is greater than found among the general population. At present there appears to be a disjunction between Special Education programs in the schools and those under the "ownership" of correctional agencies. The importance of school retention of difficult-to-teach pupils in reducing the prevalence of delinquency is well established. Are students leaving school due to academic failure which is deemed too difficult to remediate by "high academic press" schools? Are these schools "sending the message" to difficult-to-teach students that they are unwanted and should voluntarily leave? Do students leave as a result of poor grades signaling their failure as learners and resulting in a subtle form of peer/adult social rejection? Is school failure "manufactured" by the school through poor instruction, inappropriate academic demands, competency test requirements, and the like? We must seek the answers to these questions as our field projects future remedies for the increasing prevalence of school drop-out problems among MH pupils.

2.0.1. Immediate steps should be taken to determine the reasons for school drop-out among Hispanic, black, and other minority MH students in the schools. Particular effort should be directed toward determining the role of parents and family, cultural and linguistic variables, formal school policies, and

professional attitudes and practice as determinants of school drop-out problems.

2.0.2. All of the above questions and issues point to the appalling lack of research data on what is rapidly becoming one of the most significant problems resulting from child variance in the schools. Hence, immediate steps should be taken to encourage large-scale policy research into the dynamics of school drop-out rates.

2.1. Upon identification of the reasons for school drop-out among MH students, appropriate agencies should be encouraged to support interventions specifically focused on remedying same and maintaining students at risk within school programs. Such interventions should, where appropriate, seek to both prevent pupils from dropping out of school and reduce school drop-out rates through programs designed to support high risk students and their parents.

2.2. In the absence of effective prevention and intervention program implementation, legal and legislative means should be sought to protect the handicapped pupil's right to remain in public schools. Schools seeking to abrogate their responsibilities to pupils by engaging in informal or formal "push-out" policies and practices should be prohibited from same by appropriate legislative protections offered to at risk difficult-to-teach pupils. The schools, in conjunction with other social agencies, should be required to maintain responsibility for

the continuing education of pupils who have dropped out of formal schooling.

2.3. Special education should lead in the development of outreach programs for drop-outs in the community and in correctional agencies. In the future, "second chance" intervention programs should be developed *in situ* for the school drop-out population. Special educators should advocate for this unsupported, neglected population and directly interface with other segments of the educational community in the development, inauguration, and evaluation of exemplary efforts (e.g., store-front programs in the community, telephone courses, electronic bulletin board instructional and communications programs, and other community, home, and institutional educational delivery systems).

2.4. The time has come for special educators to look to a future in which we advocate and assist in creating programs for all school-aged populations that are at variance from modal school achievement levels and learning styles and are at risk of prematurely discontinuing their formal education. The critical point is that the large percentage of difficult-to-teach pupils who drop out of school must be seen as "our students!" These neglected and unprotected pupils are in need of constructive advocates--why not expand our current views of exceptionality to encompass this group who clearly represent the failures of our regular educational system?

2.4.1. We must also reexamine our current view that formal schooling and education are synonymous. For some children, the school may not be the most appropriate environment for acquiring an education. We must abandon the assumption that the school building is the exclusive locus for educating MH pupils. Creative adaptations from extra-school Special Education programs that have worked with other handicapped populations should be applied to MH pupils who are at risk of becoming permanent drop-outs, or who have already left school prematurely.

2.5. It should be clear that I am proposing a radical reconceptualization of the field of Special Education to address the pressing present and future educational needs of our society--one that, if adopted, will surely bring us all to a point of active leadership in the mainstream of the community of educators. I do not propose "joining" a regular education establishment that has traditionally disclaimed ownership of difficult-to-teach pupils. Rather, I propose a global reconceptualization and extension of our responsibilities, opportunities, and roles as special educators toward becoming strong advocates for all such pupils and developing and operating effective programs for them within the context of school site problem solving teams. If we have the foresight and conviction to assume "ownership" of the educational problems of the large and growing population of pupils who deviate markedly from school site norms, then we will

certainly play a significant role in shaping the future course of all public education by the year 2000 and beyond.

3.0 CURRICULUM AND TRANSITIONS IN SPECIAL EDUCATION

Our preoccupation with compliance and rights issues over the past ten years and the general shift toward broader educational reform has resulted in a rather uncritical view of curriculum for handicapped youth in the schools. We have adopted a "watered down" academic orientation to curriculum for MH pupils. The diagnostic-prescriptive models generally associated with programs adopted for LD pupils have been generalized to most MH populations resulting in an emphasis on remediating underlying psychological deficits and problems in basic academic skill development. We have virtually lost interest in occupational education, personal and social skills development, and other non-academic curriculum areas. In the past decade, the great majority of MH pupils have been educated within "mainstreamed" classrooms where a basic academic curriculum emphasis is the norm--and where non-academic skill development is not stressed. Some would contend that school for the MH pupil has become a rather limiting existence characterized by drill and practice in basic academic skills. This has certainly been validated by our research on microcomputer applications with highly motivated MH pupils in the elementary schools in southern California. Elementary school level MH pupils were primarily subjected to math drill and practice when gaining access to microcomputers. (see Cosden, Gerber, Semmel, Goldman, &

Semmel, 1985; Semmel, Goldman, Gerber, Cosden & Semmel, 1985; Lieber & Semmel, 1985; Semmel & Lieber, 1986; Semmel, 1986).

There is a rich and replicated data base on adult follow-up studies of MH pupils which indicates that employment is primarily related to social and personal skill development (Goldstein, 1964). Young MH adults have been found to lose jobs due to a lack of non-manual skills associated with work; and academic achievement beyond 3rd or 4th grade competence doesn't appear to be particularly significant in finding, getting, and maintaining employment in the service or unskilled trades. Despite recent policy initiatives toward fostering so called "transition programs" at the secondary level, research findings reported within the past ten years appear to indicate that unemployment among the handicapped is relatively high and is increasing.

Contemporary secondary school curricula appear to be discordant with the need for training adaptive personal/social skills required for subsequent occupational and community adjustment. It is clear that the educational reform movement has interacted with the LRE provisions of law to produce an emphasis on academic competence for all pupils within the "mainstream." The regular secondary classroom is not traditionally viewed as an environment in which non-manual personal and social skills are developed systematically and sequentially toward meeting subsequent social and employment requirements in the community. Secondary school Special Education interventions are, for the most

part, focused on remedying developmental academic deficiencies which retard achievement in other subject matter goals of the regular class curriculum (Deshler, Lowrey & Alley, 1979).

Further, recent studies of school-work experience programs for MH secondary pupils suggest the tendency to pre-select only those students with relatively high functioning levels (D. Semmel, Cosden, & Konopak, 1985). Hence, it may well be the case that when considering high drop-out rates and other selection biases operating in the schools, the great percentage of MH adolescents are not currently receiving needed school-work training programs designed to build the necessary social-occupational skills for successful transition to the world of work.

Elementary and middle school Special Education programs have also neglected the development of initial concepts and skills necessary for eventual social adjustment and gainful employment. The mainstreamed regular classroom and the resource room tend to be structured as incompatible educational environments for meeting such curriculum objectives. Hence, the traditional emphasis on developmental, sequential, and spiral curriculum of occupational education and social skills development leading to successful community adjustment of the MH adult appears to have been ignored by Special Education programs during the P.L. 94-142 era. Developmental "watered down" academic skill objectives have supplanted interests in furnishing MH pupils with functional

academic curricula correlated with chronological age and social skills levels.

There is little or no evidence that the curriculum emphasis for MH pupils over the past decade has increased the flow of members from this population into higher education or into careers which are clearly dependent on high levels of academic competency. On the contrary, the evidence appears to suggest that MH pupils have a higher probability of failure in school and community as a function of the increased academic press in the schools and the growing competition for jobs.

It is clear that at all levels Special Education is failing to prepare MH students for the important transitions that they must experience from early childhood through adulthood. The elementary school curriculum generally fails to consider the important discordant values, rules, and expectations facing the child during his formative years in transition from the home to the school. Once completing the elementary and middle school grades, the child is apparently ill prepared to cope with the personal, social, and academic demands presented by the transition into secondary school environments. The high school, as evidenced by the unacceptable drop-out rates and relatively low levels of employment of MH young adults, subsequently fails to prepare pupils for the critical transition from school to adult community living.

It may be concluded that while the past decade has clearly improved the handicapped child's rights to an education in least restricted environments, his/her right to a "free and appropriate" education has, in fact, not been "free" of significant lost opportunity costs and has fallen short of being "appropriate" in regard to preparation for the major transitions from home to school to the community. Over the past ten years, we have protected some MH pupils from the feared "self-fulfilling prophecy" of non-academic programs as expressed by the civil rights advocates of the 1960s and early 1970s. However, it may well be that, for most MH pupils, the subsequent emphasis on "watered down" academics has caused these students' needs to develop important adaptive skills necessary for social and occupational adjustment in the school and community to be ignored.

It appears evident that if we continue with present policy, increasing numbers of handicapped young adults will find it more and more difficult to find, obtain, and hold gainful employment due to lack of relevant preparation in public school Special Education programs. Increasing numbers of handicapped adolescents will continue to drop out of Special Education programs and find their way into the criminal justice system. Given the current press for academic competence within Special Education programs, it is difficult to see how we can remedy the curriculum and transition problems alluded to above without a comprehensive reevaluation in the near future. Without such reassessment, we

surely face a future in which the schools will contribute to what Yates (1986) has referred to as a "two-tiered" system consisting of "elites and non-elites" in our society.

Agenda Items Related to Curriculum and Transitions

3.0. To offset the potential negative effects of the academic emphases in current Special Education programs, future efforts should reconsider the delivery of personal, social, and occupational education curricula developed during the pre-P.L. 94-142 era. Special Education programs should develop educational environments in which, in addition to basic academic skills, it is feasible to reintroduce functional academic and social-occupational skills curricula (e.g., study of appropriate job areas, methods of finding, getting and holding jobs, developing occupationally appropriate personal and social behaviors). These rediscovered curriculum emphases for the MH pupil must be instituted in the elementary grades and assured a continuity throughout the MH pupil's educational experiences.

3.0.1. We must also re-evaluate instructional delivery formats that present subjects in isolation (e.g., reading, math, spelling, etc.). Functional academic work can be integrated with social skills through rediscovering the "unit" and "core curriculum" approaches developed over 40 years ago (see Hungerford, DeProspo, & Rosenzweig, 1948; 1952).

3.1. Future Special Education curriculum initiatives must occur without infringing on pupil rights to an education in least

restricted environments; and they should not result in a self-fulfilling prophecy with respect to denying certain pupils the opportunities to grow to their highest potential levels of academic proficiency. We must be vigilant to assure that Special Education curricula never become socially acceptable vehicles for discriminatory assignment and practices directed at racial and/or ethnic minority groups.

3.2. In rediscovering social-occupational education curriculum for MH children, we must neither return to the discriminatory practices of pre-1960s times, nor permit the current over-emphasis on "watered down" academic programming to continue. However, we must disabuse ourselves of the romantic notion that all children are academically inclined; and we must moderate our current preoccupation with the value of academic competence for all pupils. A synthesis should be realized which provides for the rights of the handicapped while simultaneously assuring quality education and appropriate preparation for a successful life in and beyond the school.

3.2.1. The challenge for the future is creating a delivery system that offers functional curricula within the same educational environment that provides the MH student with a range of instructional alternatives while assuring his right to LRE.

3.3. The concept of "transition" must take on a broader meaning to special educators in the next decade. We should realize that handicapped clients undergo many transitions which

must be supported through specific programmatic efforts. Each transition must be successfully negotiated and accomplished if a completely coherent habilitation program is to be realized by MH pupils. Hence, in the future, we must conceptually and pedagogically link the cultural, linguistic, and socio-economic influences of the home to the child's formative transition to formal schooling. We must subsequently identify the dynamics of sequentially occurring within-school transitions and their respective relationship to home variables. Special Education must develop a strong partnership with the private commercial sector toward appropriating school-work program experiences necessary to assure a smooth transition from the the school to successful community living.

3.3.1. The concept of Special Education in the future must be expanded to encompass an organized societal concern and support system for all who significantly vary from modal characteristics. Special educational curricula and interventions must be seen in the context of a broader societal response to individual differences. However, interventions should not seek to eliminate those valued individual and group differences that serve to define the diversity of our democratic society so admirably. Hence, in the future, Special Education must assume an expanded role for coordination of comprehensive, multi-agency approaches to assisting MH clients over the hurdles which bound the critical transitions of their lives. In the future, Special Education

should lead in the development of effective programs for adult and geriatric MH populations. In so doing, the field will also lead in developing a comprehensive "life span" intervention strategy designed to maximize the potential of all handicapped individuals at every stage of life.

4.0 LEAST RESTRICTIVE ENVIRONMENTS AND EFFECTIVE INSTRUCTION

Over the past ten years we have moved from naive interpretations of least restrictive environment (LRE) to relatively sophisticated views of analyzing effective instructional environments. As many of us have pointed out, researching the effects of administrative arrangements on handicapped pupils has proven to be counterproductive (Gallagher, 1986; Semmel, Gottlieb, & Robinson, 1979; Semmel, Lieber, & Peck, 1986). However, recent attempts to determine what school and classroom variables appear to foster achievement have yielded significant findings. For example, the effective school research has delineated a clear set of school variables that are related to academic achievement of pupils (see Good & Brophy, 1986). Studies of teacher behavior and classroom environments have revealed powerful conditions associated with achievement for both handicapped and non-handicapped learners (Semmel, Lieber, & Peck, 1986; Wittrock, 1986). As Schrag (1986) and others have pointed out, direct instructional methods, increased academic learning time, cooperative learning paradigms, peer tutoring, class size,

and other variables have been implicated in maximizing student achievement gains.

The provisions of P.L. 94-142 have imposed a set of requirements designed to protect the rights of handicapped children in the schools. The mandate has focused educational delivery systems on "compliance" issues related to assuring these rights. Hence, least restrictive educational environments (e.g., Mainstream classes) have been constructed and maintained following the criteria of adherence to law, but not necessarily following criteria related to the cost-effectiveness of such Special Education interventions. This state of affairs has resulted in a confusion among practitioners and researchers relative to distinctions between empirically validated and/or promising educational variables and ideological positions emanating from advocacy positions. For example, regular class placement with resource room program support is sometimes taken as prima facie evidence for LRE. However, we now know that characteristics of the pedagogical environments within mainstreamed and resource classrooms vary from school to school and within the same school and that these variations have a definite relationship to pupil outcomes. For example, Kaufman, Agard, & Semmel (1986) reported that social acceptance of MH pupils was, in part, related to group cohesion among students in mainstreamed regular classrooms. Classroom environments demonstrating relatively high peer cohesion do not tend to socially reject MH pupils. Hence, peer acceptance

of MH students may be determined, in part, by how classroom peer constituencies are administratively or otherwise constructed within classrooms. We also know that Special Education "pull-out" programs, demanding that pupils move from one educational environment to another, present a significant potential threat to maximizing academic learning time in the schools.

Agenda Items Related to Least Restrictive Environments

4.0. Research in regular education is revealing instructional conditions that constitute effective educational environments for fostering the growth of "all" difficult-to-teach pupils in the schools. These effective environments are defined by variables that have not traditionally been uniquely associated with Special Education interventions or administrative arrangements. Hence, as we look to the future, we can expect to be particularly hard pressed to define the operational features of Special Education that are distinctive in the educational system.

4.0.1. McGlothlin's (1986) excellent case study of the evolution of a small school district's Special Education program notes that "...the boundaries between regular and Special Education have begun to fade as it has become increasingly clear that effective instruction is effective for all students." She contends that Special Education is not unique in the quality of instruction offered, but rather in the "intensity" of effective practices that can be delivered to difficult-to-teach pupils.

Hence, the time may rapidly be approaching when Special Education as a field will no longer find it necessary to justify itself as creating "unique" and "special" educational environments for MH pupils--but rather we will express its raison d'etre by alluding to a role in assuring the delivery of intensive, effective instruction to those who need it most.

4.1. It is also possible that accruing research findings on effective teaching and effective school variables may well translate into interventions with MH pupils which directly challenge the pedagogical soundness of contemporary mandated and compliance oriented Special Education practices. We might well ask the painful question, "What course of action are we to take in the future if research findings on effective instructional outcomes contradict mandated LRE provisions of the law?" Faced with such a dilemma, will we value educational achievement goals or the fundamental human rights of pupils? If MH pupils in the mainstream receive less direct instruction from teachers, resulting in less opportunity to learn, and diminished achievement, will we agree to their spending more time in segregated settings with smaller homogeneous groups? On the other hand, there is already reason to ask if reduction of regular class size combined with cross-age or adult tutoring and/or microcomputer instruction would be more cost-effective for basic skills development of MH pupil when compared to mandated Special Educational interventions.

4.1.1. It is clear that as we face the year 2000 and beyond, special educators would do well to examine the body of accruing research on effective schools and instruction in light of extant LRE and other instructionally related provisions mandated in law (P.L. 94-142) to determine possible conflicts needing particular modifications and consideration for MH pupils.

5.0 SPECIAL EDUCATION TEACHER TRAINING ISSUES AND NEEDS

Just as we question the distinction between regular and Special Education for MH pupils, it follows that parallel issues must be raised relative to manpower development. Pugach (1986) has examined these issues at length. Her analysis questioned the legitimacy of the boundaries that differentiate Special Education from general teacher preparation. She also holds that the "socially constructed division of university programs" creates inefficiency in solving the problems of teacher education. Finally, she implies that at a time when resources are limited, human and fiscal energies are being duplicated or dissipated in ways that detract from the improvement of teacher education.

Pugach recognizes an obvious unproductive confusion in contemporary teacher training programs. There is a great deal of overlap in the teaching methods learned and the pupils to be taught by trainees, but there is little or no overlap in professional communication or sharing of knowledge and skills among those enrolled in regular and Special Education training programs. She contends that a "gentlemen's agreement" exists in

the relationship between the two types of training programs. Special Education training is viewed as agreeing to perpetuate personnel who accept the role and function of teaching pupils whom regular class teachers perceive to be too-difficult-to-teach. General teacher education is seen as assuring that its graduates will disown the problems presented by serious child variance and continue to pursue the services that Special Education provides. Hence, it can be concluded that the current organization and differentiation of training programs encourages trainees to subsequently support the extant dual educational systems for difficult-to-teach pupils in the schools. Pugach contends that the "burden of proof" rests with Special Education university trainers to demonstrate the "uniqueness of content, scope, and clientele of their programs for teachers of the mildly handicapped," and to justify "their reluctance to identify professionally with teacher education as a whole." Further, she reaches the conclusion to her extensive analysis "that the interests of the Special Education establishment, as represented by professionals at the university, are being served by the existence of separate programs for the preparation of teachers for the mildly handicapped." These strong criticisms of current preservice training programs in Special Education must be addressed by our field as we look toward the year 2000 and beyond.

We all appear to recognize that the coming decade will bring significant shortages of Special Education personnel. In addition

to the numbers of personnel that will be needed, we face a significant problem in dealing with the quality of professional workers in the field. Currently, in some areas there are up to 30% of Special Education personnel who are inadequately prepared and have emergency certification to teach the handicapped (Schrag, 1986). These practitioners, many of whom work in sparsely populated rural areas, must receive extensive and ongoing in-service training. They, together with the new crop of personnel recruited to work in our field, will face greater demands than ever before in the history of Special Education. The demographic projections demand that teachers be prepared to work with minority and bilingual handicapped learners (Yates, 1986). They will need to master the knowledge and skills necessary for working with the poor, the unwed mother/student, as well as a broad range of pupils representing intellectual, social, emotional, linguistic, and other sources of learner variance. They will need to master the knowledge and generate the behaviors which have been associated with effective instruction. They will have to learn to apply technology in the classroom toward maximizing pupil growth (Semmel, Cosden, Semmel, & Kelemen, 1984). When we objectively view the overwhelming expectations of the teacher's role in the future, it is clear that current support systems and resource allocations will have to be reevaluated in light of impending realities.

Agenda Items Related to Personnel Training Issues and Needs

5.0. Training of personnel in Special Education must become more generic in nature. The special educator of tomorrow must be capable of flexing to the instructional needs of a wide array of difficult-to-teach MH children representing significant perceived variance from modal ability and behavioral level in the schools. Such training must perforce include the development of skills in matching effective instructional environments to the needs of heterogeneous groups or individual MH learners. These teachers will need to be viewed as integral to the general educational system of the schools. They will have to interact directly with their peers in fostering the school-wide ownership of learning problems and in leadership roles for constructing and managing effective interventions. **Hence, pre-service teacher training in Special Education will be most effectively realized when integrated with regular education training programs in colleges and universities.**

5.1. Teacher requests for assistance with difficult-to-teach pupils within schools should be a principal diagnostic indicator for developing effective school site in-service training programs. All such professional training should take place within classrooms and other proximal school site instructional environments by "model teacher trainers" who are prepared to demonstrate targeted instructional behaviors and methods.

It follows, from the position taken earlier in this paper, that effective in-service training of teachers requires a school-site orientation. The "one-shot" intensive workshop for in-service training must be replaced by in situ school site/classroom training paradigms using appropriate models and new technologies (e.g., Semmel, 1975). School-based problem solving teams should formatively evaluate in-service program outcomes using predetermined instructional process and outcome criteria.

6.0 TECHNOLOGY AND SPECIAL EDUCATION FOR THE MH PUPIL

Comparative research on the effects of the microcomputer vs. more traditional Special Education interventions has generally failed to clearly specify the salient defining features of the respective so called "treatments." No wonder then, that in a recent review of this literature, Lieber & Semmel (1985) found that research which compared CAI delivered through a microcomputer to instruction delivered by a teacher generally revealed equivocal results (see Semmel, 1986 for a comprehensive review and discussion of the research on the effects of technology on MH pupils in the schools). Clark (1983) argues that microcomputers are the "vehicles that deliver instruction but [they] do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (p. 445). Semmel and his associates have developed a model to guide a four year research effort to determine the effects of microcomputer technology on MH pupils. The model indicates that hardware and

software are but two components of complex Micro-Educational Environments (MEEs) that include the characteristics of the learner, peer and teacher behavior, curriculum content, and other identified instructional variables. In seeking to determine the effects of technology on educational outcomes, special educators must consider the variations in MEEs and not just the characteristics of the hardware and software technology configuration (Semmel, 1986; Semmel & Lieber, 1986).

Pressure for rapid acquisition and allocation of technology in Special Education originates with the interaction between the need to develop powerful instructional interventions for difficult-to-teach pupils and the valences generated by entrepreneurial interests within the competitive marketplace. Unfortunately, for the most part, adoptions by the schools have followed commercial marketing strategies which manufacture an excitement and enthusiasm for the advertised potential of the new technology. Administrative decisions to buy into the new technology have not generally been based on empirically validated pedagogical impact of microcomputer applications for the plurality of MH pupils in elementary and secondary schools.

It is clear that microcomputer adoptions are very costly to the schools. Henry Levin has estimated that for every dollar expended for computer hardware, approximately four or more dollars are required for other resources such as supporting software, maintenance, personnel, and special facilities. The overall

message is that computer hardware accounts for a relatively small proportion of the total cost of CAI.

We have observed that as the number of microcomputers allocated to classes within a school site increases, there is a corresponding movement toward linking them in school computer laboratories to form local area networks (LANs). The purchase of such networks require technical staff who must either be transferred from other instructional responsibilities or newly employed at a considerable further opportunity cost. Teachers bringing their MH students to such centralized facilities tend to rely on technical staff to structure the instructional contexts for pupils--regardless of the staff's pedagogical training and skills. The instructional characteristics of LANs are frequently not particularly suited to the learning characteristics of difficult-to-teach learners. Once adopting such systems, it is difficult and certainly very costly to alter the curriculum content significantly to meet the specific needs of MH children. For example, the form of leased courseware for expensive LANs will most certainly dictate the function of educational interventions for MH children. Curriculum content is most frequently presented to reflect a subjects-in-isolation instructional model in contradistinction to a broad fields, unit, or core curriculum orientation to instruction. Content is generally presented from a developmental basic skills orientation in contradistinction to a

social skills, functional academic approach to instruction of mildly handicapped pupils.

Microcomputer technology has been described as revolutionary, with the capability of transforming the classroom into exciting simulated environments in which students experience systematic instruction to acquire new content knowledge, and in which they can learn new skills and express themselves creatively. While software packages have been developed toward achieving these expectations, the reality of the majority of the instruction delivered to MH pupils through microcomputers in classrooms is considerably more limited and conventional.

Our research over the past three years (Project TEECh, see Semmel, 1986) indicates that while the new technology is extremely costly, teachers of MH pupils use microcomputers in the classroom primarily for drill and practice tasks for which they themselves have provided the initial traditional instruction. Teachers maximize the number of students who use the technology by limiting access time and by having pairs of students work together at the computer. Systematic observations revealed limited teacher supervision of pupils assigned to the microcomputer area. Generally, teachers view the microcomputer as an ancillary innovation which is not an integral facet of their curriculum plan. Certainly it is easier for teachers with little time to devote to the computer to use the technology to deliver drill and practice games than to teach programming, word processing, or new

curriculum content to MH pupils. Drill and practice programs are easily used by teachers with relatively little or no computer literacy skills.

Space does not permit a further detailing of our descriptive research results. However, when synthesizing our Project TEECh survey, ethnographic, and observation data (see Semmel, 1986) along with the other reported technology research on classroom delivery system variables an interesting empirically validated contemporary picture of microcomputer applications with MH pupils in the schools emerges. For the most part, the MH pupil gains access to individual microcomputers either alone or more often as a member of a small group, if he/she is in a mainstreamed setting. The machine and its arcade game software format does a remarkable job in engineering the child's attention to math drill-and-practice instructional content. The pupil gains access to the microcomputer to practice what has been already learned, the objective being to increase speed and accuracy (automaticity) of performance. However, the pupil continues to make a relatively large number of errors because he/she apparently has not, in fact, previously learned the basic skills facts. The MH pupil has particular difficulty in keyboard use which might account for superior performance, under certain circumstances, in using paper and pencil workbooks. Hence, the pupil is unintentionally subjected to drill-and-practice as a rather uninspired standard instructional paradigm for basic skill acquisition, rather than,

as intended, as extended practice of attained skills. The pupil demonstrates relatively low rates of help seeking behavior when working alone, receives very little teacher monitoring or feedback during microcomputer instruction; and the software generally does not include a dribble file to track the pupil's errors. Typically, the program will offer immediate non-corrective feedback to the pupil. In most cases, the rate and number of errors have little or no consequences relative to subsequent level or quality of instruction presented through stimuli presented on the screen. While some programs attempt to interactively diagnose the pupil's level of functioning, virtually none include sophisticated branching instructional routines for ameliorating diagnosed problems. Microcomputer hardware used in classrooms rarely has sufficient memory to support sophisticated artificial intelligence software packages if they were available.

The research clearly indicates that Micro-Educational environments generally succeed in "curing" the MH pupil's attentional and motivational deficits, and admirably manage the child's behavior by maintaining him/her on-task. Speed and accuracy scores do improve if the pupil has previously learned the content of the program. However, recent results from our research clearly indicate that arcade-like game software may be particularly distracting for MH pupils when compared to unadorned, simple screen presentations. We have also discovered that MH pupils perform relatively better on microcomputer math problem

solving tasks when paired with a non-handicapped peer, as compared to working alone or with another MH pupil.

In conclusion, this synthesis of research findings presents a very distant and contradictory message from the advertised promise and potential anticipated use of microcomputers with MH pupils in the schools. The potential for technology to assist the teacher in reducing the variance of instructional demands from difficult-to-teach pupils in the classroom has not as yet been realized. The graphically motivating computer game formats may motivate the learner but distract him/her from maximal performance. The dyadic instructional condition with a non-handicapped peer produces superior results to the individual learner-microcomputer configuration.

Agenda Items Related to Technology and Special Education

6.0. In the future, technology will continue to enjoy great popularity and will continue to be adopted by the schools at a relatively great opportunity cost to Special Education budgets. Decision makers will continue to be influenced by claims that the new technology will cost-effectively reduce needs to instruct pupils with marked learning variance in the schools. However, given its current configurations and evolutionary directions, the new technology is more likely to produce just the opposite effect; it will separate the difficult-to-teach pupils from the average and rapid learners even more than currently utilized non-technological interventions.

6.1. Many researchers have demonstrated the remarkable rates of attending and on-task behavior of MH children engaged in CAI tasks. However, our research clearly cautions that engagement as measured through visual orienting and keyboard responding is a necessary, but not sufficient condition for achieving learning or automaticity of a skill. Learners must be focused on the salient stimuli and critical concepts appearing on the computer screen if desired outcomes are to be achieved. Without careful programming which considers the characteristics of the learner in relationship to stimulus presentation, I am afraid that we run the risk of MH computer users looking but not seeing, and engaging but not learning.

Hence, I caution special educators that without careful instructional programming in the future, the microcomputer, like TV, can easily become "chewing gum" for the eyes and minds of MH children in the coming decade. There is good reason to worry that the motivating properties of the new technology will be used in the future as mechanical "tranquilizers" for the hyperactive pupil, and as non-instructional "mesmerizers" for pupils lacking intrinsic motivation, or otherwise difficult-to-teach pupils.

6.2. It appears reasonable to conclude from the research that insofar as microcomputer applications are used in ancillary drill-and-practice teaching and automaticity paradigms for MH pupils, it may well be more cost-effective in the future to utilize non-handicapped peers as tutors who augment the CAI

instruction being delivered for the purpose of skill acquisition--and then assigning the individual mildly handicapped student to a microcomputer configuration using "plain vanilla" type software to attain automaticity of the already learned skills.

The central point here, as we look to the year 2000 and beyond, is that the computer may not be an efficient instructional system for teaching new basic skills to MH pupils through drill-and-practice programs when used alone in its most advertised mode as an automatic instructor of individual pupils and as a means of effectively engaging child achievement variance in classrooms. It is apparent that efficient microcomputer applications will remain dependent on instructional interventions and contextual variables (e.g., peer tutoring) which interact with this form of service delivery.

6.3. There is cause for concern that the lack of instruction in computer tool use skills in Special Education settings may result in a disadvantage for MH pupils when engaged in future CAI instructional programs and in negotiating a future world that promises to be highly dependent on technology. Hence, further research and instructional emphasis on tool use and computer literacy among elementary and secondary school MH pupils is essential.

6.4. We must find appropriate techniques for developing effective in-service training for computer-using special educators. The instructional potentialities of technology can

only be realized when shaped by sophisticated educators who are sensitive to learner characteristics, instructional design and delivery, and the limits of computer programming. The demands of the future for an amalgam of knowledge and skill represented by the challenge of instructional uses of computers suggests the need for recruitment and selection procedures to attract talented people into Special Education and unique in-service and pre-service training programs.

6.4.1. The community-based user group model is a more promising approach to training large numbers of teachers to acquire appropriate levels of computer literacy for pragmatic application in Special Education programs when compared to traditional school or district-based workshops (see Semmel, et al., 1984 for a comprehensive discussion of training Special Education personnel for effective use of microcomputer technology).

7.0 THEORY, RESEARCH AND LEADERSHIP TRAINING IN SPECIAL EDUCATION

It is perhaps fitting, if not too professorial, that I conclude this rather protracted discussion with a selected analysis of theory, research, and leadership training in our field. There is clearly an absence of models to guide research in Special Education. The disciplines within psychology remain the basic sources of theoretical guidance for stimulating research in our field. Child development and other psychological disciplines have historically yielded relatively valuable constructs for those

of us interested in understanding handicapped children. They have frequently served as the dominant source of substantive curriculum content for research oriented doctoral training programs in Special Education. However, the social sciences (e.g., Sociology, Anthopology, Economics, Political Science) have historically played relatively minor roles in guiding our research or leadership training programs.

It strikes me that rigorous psychological theory offers some among us in higher education, the false comfort of an "academic pacifier" for our need to affiliate with the "hard" sciences. It somehow sounds better and is more prestigious to study information processing, memory, attentional deficit, temperament, and the like when compared to the more prosaic, ecological concerns embedded in the legal mandates and instructional practices guiding the delivery of Special Education services. My observations during 25 years in higher education lead to the conclusion that the Special Education professor playing the uneasy role of research psychologist rarely gains the status and acceptance sought from colleagues in the Arts and Sciences.

Virtually all of the exciting empirical findings on effective teaching, effective teacher education, school effects, media and teaching, conducted over the past ten years, have emanated from the field of educational psychology (Wittrock, 1986). The recently published review by MacMillan, Keogh, & Jones (1986) and the earlier review by Semmel, Gottlieb & Robinson (1979) clearly

reflects the paucity of school-based instructional research conducted by special educators over the past decade.

Agenda Items Related to Theory, Research, and Leadership Training

7.0. It is clear that many administrators and practitioners in our field are generalizing the results of the exciting instructionally relevant research emanating from regular education to Special Education contexts. We in Special Education would do well, however, to conduct cross validation studies to verify that these generalizations are appropriate with currently defined MH and other difficult-to-teach populations. This is, perhaps, one important agenda item for future research in our field.

7.1. In past decades, the impact of leadership training and research in Special Education has made important contributions to an understanding of severe disability, but the impact of these efforts has been constrained in contributing to an applied instructional science for pupils revealing relatively mild handicaps in the schools, or on policy issues directly related to service delivery problems in Special Education. The result is a desperate shortage of Special Education researchers and a prevailing belief held by practitioners that research has relatively little to offer them. If Special Education research and advanced leadership training is to function as a vanguard for new concepts and directions as we look toward the coming decades,

then universities must reevaluate their professional orientations and values.

7.2. I submit that theory most salient to the development of an instructional science of education for difficult-to-teach pupils (i.e., Special Education) does not derive directly from basic cognitive and/or developmental psychology, but rather from a consideration of the nature of individual learning and behavior differences in the context of the social sciences. For example, the laws, rules and regulations adopted by our society to govern the education of handicapped children (e.g., P.L. 94-142) are, in effect, consensually derived theoretical constructs asserting how best to define and educate handicapped children in our society. P.L. 94-142 constitutes assertions of rights but implicitly defines a consensually derived set of interdependent constructs pertaining to appropriate and effective education for the handicapped (e.g., IEP and LRE). These constructs and their underlying assumptions might well serve as a pragmatic guide for a research agenda that is uniquely focused on Special Education concerns. In addition to supporting the continued study of within-pupil psychological variables and instructional conditions for the modal range of learners, we must develop a cadre of researchers who effectively contribute to an understanding of social, economic, and political influences on Special Educational policy and practice directly related to difficult-to-teach populations in the schools.

7.3. What we desperately need in the future is a new group of trained Special Education leadership personnel with the knowledge and skills to conduct data-based research that validates the effects of different pedagogical environments on socially acceptable objectives for MH learners. I and my colleagues refer to such efforts as training in "Policy Analysis Research in Special Education" (see Ballard-Campbell & Semmel, 1981); and we have been guided by this orientation in the development of our doctoral and post-doctoral leadership training programs at the University of California, Santa Barbara (Gerber & Semmel, 1984a).

7.3.1. We contend that the theories of the social sciences are particularly promising since they give some perspective on the ecological component of the Special Education equation. For example, we must learn more about the sociology of the classroom in relationship to perceived pupil variance. Small group sociological theory could guide such efforts. We must learn more about the economics of resource distributions to difficult-to-teach members of classroom groups. Econometric models and methods might be helpful in guiding such Special Education research. But I fear that if our future leaders rigidly embrace the social sciences to satisfy professional insecurities and needs for affiliation with these disciplines, then they will soon emulate the disappointing results of their colleagues who exclusively prefer the organismic side of the empirical equation.

7.4. Those of us interested in building a knowledge base and leadership training programs that focus exclusively on child characteristics and psychological processes should certainly exercise the required academic freedom--but let's not perpetuate the myth to our doctoral student trainees, practitioners and policy makers that such training and research has direct promise for instructional practice in naturalistic classrooms. Only when our research and advanced training in Special Education reflects the influences of the "street level bureaucrats," can we hope to approach ecologically sound principles for educating the mildly handicapped in the schools. Only when our efforts reflect the reality that politics, economics, and social attitudes affect our "pedagogical science" of service delivery, will we approach a realistic and pragmatic interpretation of the potential contributions of the social and behavioral sciences to Special Education. Only when we consider the most proximal educational variable in our search for effects on educational outcomes of MH pupils will the probability of validating causal relationships in the future increase. We would do well to consider adopting the provisions of such mandates as P.L. 94-142 as consensual social theories to be empirically validated through powerful scientific methods. Our doctoral training programs should focus on building the conceptual and methodological skills necessary for developing such social science oriented research and for building an

ecologically valid empirically-based instructional science for difficult-to-teach populations.

In conclusion, no matter how hard some of us try to avoid reality, the fact remains that Special Education for the mildly handicapped is an applied field, it is not the science of human behavior; it is not a sub-field of child development; it is not a derivative of cognitive psychology. Special Education research and practice must be concerned with the interaction between children reflecting marked individual differences in learning and behavior with the molar and molecular social, political, economic, and educational variables within the home, school and society that impact on instructional outcomes. Those of us interested only in the child variance component of the equation should recognize that it is unlikely that we will contribute directly to effective Special Education knowledge or practice.

As we approach the year 2000 and beyond, theory, research, leadership training, teacher training, technology, curriculum, and instructional delivery in Special Education must all be concerned with policy issues which are directly related to the effective instruction of <u>all</u> difficult-to-teach children. Special Education for the mildly handicapped must be reconceptualized as a school-site delivery system. In this way special educators can lead in creating and maintaining a commitment within a unified general educational community to the objective of achieving a free and

appropriate education for all children--and by assuring effective instruction for all of those pupils who must be taught in order to learn.

References

Algozzine, B., Ysseldyke, J. E., & Shinn, M. (1982). Identifying children with learning disabilities: When is a discrepancy severe? Journal of School Psychology, 20, 299-305.

Ballard-Campbell, M., & Semmel, M. I. (1981). Policy research and special education: Contemporary research issues affecting policy formation and implementation. Exceptional Education Quarterly, 2, 59-67.

Brophy, J. E., & Good, T. (1974). Teacher-student relationships: Causes and consequences. New York: Holt, Rinehart and Winston.

Brown, B., & Saks, D. (1983, April). An economic approach to measuring teachers' preferences in allocating time to students. Paper presented at the meeting of the American Educational Research Association, Montreal.

Chalfant, J., Pysh, M., & Moultrie, R. (1979). Teacher assistance teams: A model for within-building problem solving. Learning Disabilities Quarterly, 2, 34-49.

Christenson, S., Ysseldyke, J. E., & Algozzine, B. (1982). Institutional constraints and external pressures influencing referral dicisions. Psychology in the Schools, 19, 341-345.

Clark, R. E. (1983). Reconsidering research on learning from media. Review of Educational Research, 53(4), 445-459.

Cosden, M. A., Gerber, M. M., Semmel, D. S., Goldman, S. R., & Semmel, M. I. (1985). Observational study of microcomputer use by Special Day Class, Resource Room, and Mainstream handicapped

and nonhandicapped students (Technical Report No. 8). Santa Barbara: University of California, Project TEECh.

Deshler, D. D., Lowrey, N., & Alley, G. R. (1979). Programming alternatives for learning disabled adolescents: A nationwide survey. Academic Therapy, 14(4).

Dunn, L. M. (1968). Special education for the mildly retarded: Is much of it justifiable? Exceptional Children, 35, 5-22.

Gallagher, J. J. (1986, May). The role of research in the future of special education. Paper presented at the Symposium of the Future of Special Education, The Council for Exceptional Children, Lake Geneva, Wisconsin.

Gerber, M. M. (1984). The Department of Education's sixth annual report to Congress on PL 94-192: Is Congress getting the whole story? Exceptional Children, 51, 209-224.

Gerber, M. M., & Semmel, M. I. (1984a). Policy analysis research training in special education. TEASE, 7, 66-74.

Gerber, M. M., & Semmel, M. I. (1984b). Teacher as imperfect test: Reconceptualizing the referral process. Educational Psychologist, 19, 137-148.

Gerber, M. M., & Semmel, M. I. (1985). Microeconomics of referral and reintegration: A paradigm for evaluation of special education. Studies in Educational Evaluation, 11, 13-29.

Gerber, M. M., Semmel, M. I., & Schram, L. (1983). Child study teams in California: Appropriate response by school site staff to students who are difficult to teach and manage (Research

report). Santa Barbara: University of California, Special Education Program.

Goldstein, H. (1964). Social and occupational adjustment. In H, A. Stevens & R. Heber (Eds.), Mental retardation: A review of research. Chicago: University of Chicago Press.

Good, T. L., & Brophy, J.E. (1986). School Effects. In M. C. Wittrock (Ed.), Handbook of Research on Teaching. New York: Macmillan Publishing Company.

Gould, S. J. (1981). The Mismeasure of Man. New York: W. W. Norton.

Hobbs, N. (Ed.) (1975). Issues in the classification of children (Vol.2). San Francisco: Jossey-Bass.

Hungerford, R. H., DeProspo, C. J., & Rosenzweig, L. E. (1948). The nonacademic pupil. New York: Association of New York Teachers of Special Education.

Hungerford, R. H., DeProspo, C. J., & Rosenzweig, L. E. (1952). Education of the mentally handicapped in childhood and adolescence. American Journal of Mental Deficiency, 57, 214-228.

Kaufman, M. J., Agard, J. A., & Semmel, M. I. (1986). Mainstreaming: Learners and their environment. Cambridge, MA: Brookline Books.

Kelemen, E. J., & Semmel, M. I. (in preparation). Identification of learning disabilities: A critical analysis of models.

Kirk, S. A., & Elkins, J. (1975). Learning disabilities: Characteristics of children enrolled in the child service

demonstration centers. Journal of Learning Disabilities, 8, 630-637.

Lieber, J. A., & Semmel, M. I. (1985). Effectiveness of computer application to instruction with mildly handicapped learners: A review. Remedial and Special Education, 6, 5-12.

MacMillan, D. L., Keogh, B. K., & Jones, R.L. (1986). Special education research on mildly handicapped learners. In M. C. Wittrock (Ed.), Handbook of Research on Teaching (pp.686-724). New York: Macmillan Publishing Company.

Magliocca, L. A., & Stephens, T. M. (1980). Child identification or child inventory? A critique of the federal design of child-identification systems implemented under P.L. 94-142. Journal of Special Education, 14, 23-36.

McCann, S. K., Semmel, M. I., & Nevin, A. (1985). Reverse Mainstreaming: Nonhandicapped students in special education classrooms. Remedial and Special Education, 6, 13-19.

McGlothlin, J. (1986, May). Special Education in a small school district: Past, present and future. Paper presented at the Symposium of the Future of Special Education, The Council for Exceptional Children, Lake Geneva, Wisconsin.

Nelson, F. H. (1982). A simultaneous equation model of the provision of services to handicapped children at the school district level. American Educational Research Journal, 19, 579-597.

Norman, C. A., & Zigmond, N. (1980). Characteristics of children labelled and served as learning disabled in school systems affiliated with child service demonstration centers. Journal of Learning Disabilities, 13, 546-547.

Pugach, M. (1986, April). Special education categories as constraints on the reform of teacher education. Paper presented at the Annual Meeting of the Americal Educational Research Association, San Francisco.

Schrag, J. A. (1986, May). Implementation of P.L. 94-142 and its accomplishments, problems and future challenges: A state education agency perspective. Paper presented at the Symposium of the Future of Special Education, The Council for Exceptional Children, Lake Geneva, Wisconsin.

Semmel, D.S., Cosden, M.A., & Konopak, B. (1985). A comparative study of employment outcomes for special education students in a cooperative work placement program (Technical Report). Santa Barbara: University of California, Special Education Program.

Semmel, D. S., Goldman, S. R., Gerber, M. M., Cosden, M. A., & Semmel, M. I. (1985). Survey of special education and mainstream teacher's access to and use of microcomputers with mildly handicapped students (Technical Report No. 9). Santa Barbara: University of California, Project TEECh.

Semmel, M. I. (1975). Application of systematic classroom observation to the study and modification of pupil-teacher interaction in special education. In R. Weinberg and F. H. Wood

(Eds.), Observation of pupils and teachers in mainstream and special education settings: Alternative strategies. Minneapolis: University of Minnesota.

Semmel, M. I. (Ed.) (1984a). Special Issue: Special Education. Educational Psychologist, 19,3, Division 15, American Psychological Association.

Semmel, M. I. (1984b). Handbook of Mental Retardation: A critical review. Contemporary Education Review, 3, 289-296.

Semmel, M. I. (1986, June). A review of technology applications in special education. Paper presented to Invitational Research Symposium on Technology in Special Education, Council on Exceptional Children. Washington, D.C.: Center for Special Education Technology Information Exchange.

Semmel, M. I., Cosden, M. A., Semmel, D. S., & Kelemen, E. (1984). Training special education personnel for effective use of microcomputer technology: Critical needs and directions. Special Services in the Schools, 1, 63-82.

Semmel, M. I., Gottlieb, J., & Robinson, M. (1979). Mainstreaming: Perspectives on educating handicapped children in the public schools. In D. Berliner (Ed.), Review of Educational Research, Vol 7 (pp. 223-279). Washington, D.C.: American Educational Research Association.

Semmel, M. I., & Lieber, J. A. (1986). Computer applications in instruction. Focus on Exceptional Children, 18(9).

Semmel, M. I., Lieber, J. A., & Peck, C. A. (1985). Effects of special education environments: Beyond mainstreaming. In J. Meisel (Ed.), Mainstreaming the Handicapped Child. Hillsdale, N.J.: Lawrence Erlbaum Press.

Semmel, M. I., & Schram, L. (1983). Policy analysis in special education: Handicapped children's model demonstration program (Final Report). Santa Barbara: University of California Special Education Program.

Tucker, J. A. (1980). Ethnic proportions in classes for the learning disabled: Issues in nonbiased assessment. Journal of Special Education, 14, 93-105.

U.S. Department of Education (1986). Eighth annual report to Congress on the Implementation of the Education of the Handicapped Act (Vol. 1). Washington, D.C.: U.S. Government Printing Office.

Warner, M. M. (1981). A comparison of 5 discrepancy criteria for determining learning disabilities in secondary school populations. Lawrence, Kansas: University of Kansas, Institute for Research in Learning Disabilities.

Weatherly, R., & Lipsky, M. (1977). Street-level bureaucrats and institutional innovation. Harvard Educational Review, 47, 171-197.

Wilson, A. K. (1984). "Integration" means putting resources, not pupils, into regular classrooms. B. C. Journal of Special Education, 8, 231-245.

Wittrock, M. C. (Ed.) (1986). Handbook of Research on Teaching. New York: Macmillan Publishing Company.

Yates, J. R. (1986, May). Current and emerging forces impacting special education. Paper presented at the Symposium of the Future of Special Education, The Council for Exceptional Children, Lake Geneva, Wisconsin.

Ysseldyke, J. E., Algozzine, B., Shinn, M., & McGue, M. (1982). Similarities and differences between underachievers and students

classified learning disabled. Journal of Special Education, 16, 73-85.

Ysseldyke, J. E., & Thurlow, M. L. (1984). Assessment practices in special education: Adequacy and appropriateness. Educational Psychologist, 19, 123-136.

Zigmond, N. (1983, April). Towards a new definition of learning disabilities. Paper presented at the meeting of the American Educational Research Association, Montreal.

Zigmond, N., & Thornton, H. (1985, April). Follow-up of secondary age LD graduates and dropouts. Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois.

FOOTNOTE

[1] An abbreviated version of this paper was presented at the CEC Symposium on the Future of Special Education, at the Abbey on Lake Geneva, Fontana, Wisconsin, May 1-3, 1986. I express my sincerest appreciation to Drs. Herb Prehm and Ellen Peters for putting up with the uncertainties of my participation in this project, the delays in delivering this manuscript, and for their warm and helpful assistance prior to, during, and following the Symposium. I also acknowledge the contributions of Ms. Kathy Kramer with sincere appreciation for her proof reading and typing of this manuscript under pressing time constraints. Finally, I wish to thank my colleague Dr. Dorothy S. Semmel for her constructive criticisms and substantive suggestions for improving the quality of this manuscript.